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(71) Applicant: **TURKCELL TEKNOLOJI ARASTIRMA VE GELISTIRME ANONIM SIRKETI** [TR/TR]; Turkcell Teknoloji Plaza Aydinler Mahallesi Inonu Caddesi No:20, Maltepe/Istanbul (TR).

(72) Inventors: **OZUMUZTOPRAK, Esra Ozlem**; Tubitak Mam Teknoloji Serbest Bolgesi, Gebze/Kocaeli (TR). **VATANSEVER, Koray**; Tubitak Mam Teknoloji Serbest Bolgesi, 41470 Gebze/Kocaeli (TR).

(74) Agent: **TRITECH PATENT TRADEMARK CONSULTANCY INC.**; Cankaya Mahallesi Mahmut Yesari Sokak No. 8/5, 06690 Cankaya/Ankara (TR).

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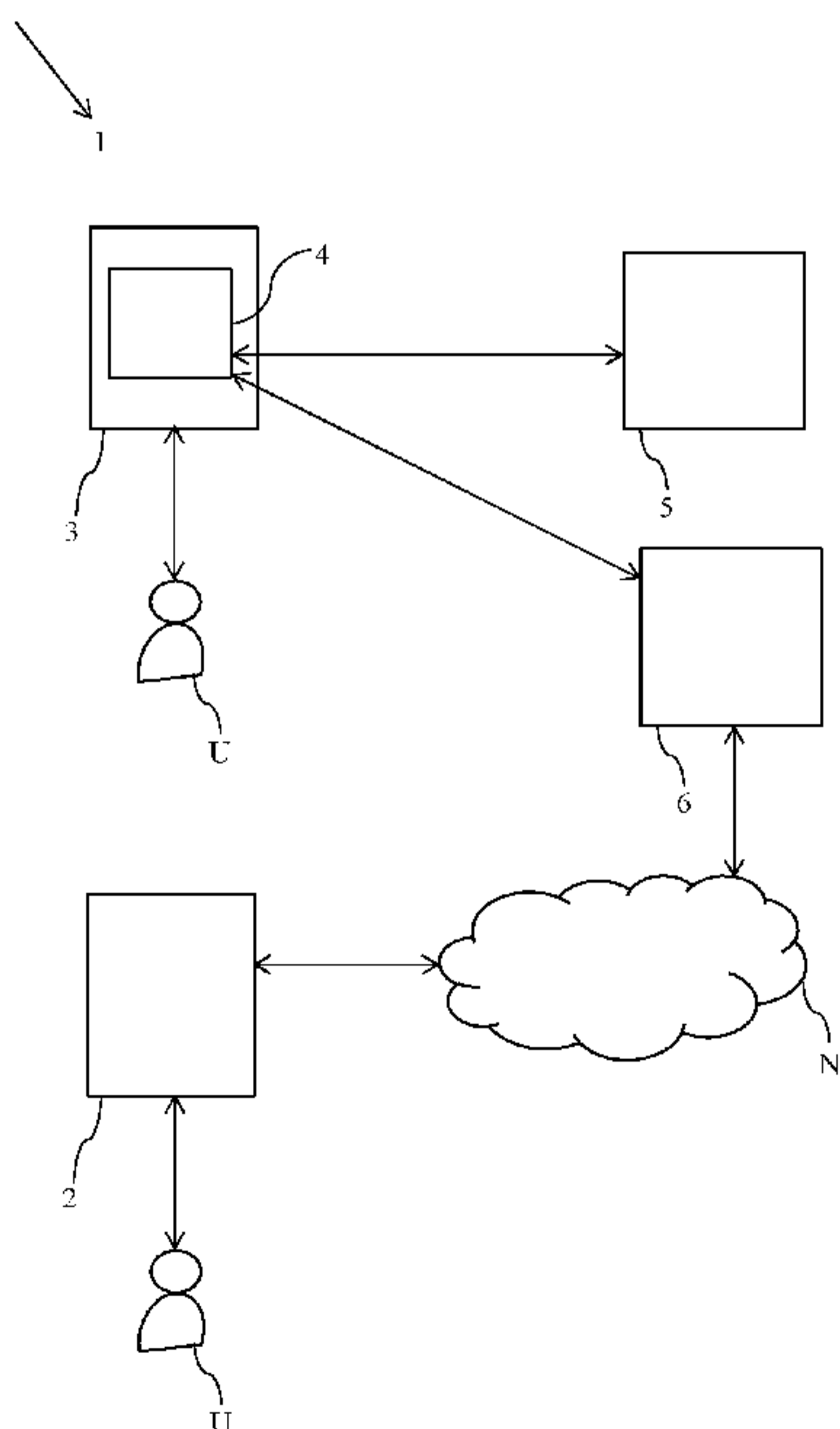
AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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(54) Title: A SYSTEM USED DURING RETRIEVAL OR TRANSMISSION OF SHORT MESSAGE

Figure 1



(57) Abstract: The present invention relates to a system (1) for managing short message traffic between a user (U) and another user (U) over mobile data or WIFI.

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## A SYSTEM USED DURING RETRIEVAL OR TRANSMISSION OF SHORT MESSAGE

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### Technical Field

The present invention relates to a system for managing short message traffic between a user and another user over mobile data or WIFI.

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### Background of the Invention

Today, users can connect to GSM networks by a SIM card in their mobile devices and then send or receive sms to/from other persons included in the related GSM network. With the development of technology, users are enabled to receive SMSs incoming to their own mobile numbers by means of interface that are located in operating programs in their mobile devices, through a mobile interface/application. However, it is not possible in this method to send instant messages that are sent through application by using mobile number, as SMS over a mobile device with SIM card. In addition, users cannot manage incoming-outgoing SMSs in cases where they cannot receive signal from their mobile voice networks, i.e. they cannot access their mobile voice networks, by current GSM technology.

25 Due to the above-mentioned reasons, it is understood that there is need for a system used during retrieval or transmission of short message which enables users to manage SMSs incoming to their mobile numbers when they have access to a mobile data network or a WIFI network, to send or receive SMS over a session initiation protocol in cases where users have no access to a mobile voice network;  
30 and to get billed according to the SMS pricing in the GSM operator that they are

subscribers of in case where users send-receive SMS over an session initiation protocol.

The United States patent document no. **US10440627**, an application in the state of  
5 the art, discloses a system for enabling a plurality of users to access a multi  
communication platform such as OTT, SMS, MMS and so on, and switching  
between data transmission methods; and an operation method of this system. In  
the said invention, the system retrieves users' messages they send by a telephone  
number, a short code phone number, a SIP address, a communication account  
10 identifier, and similar sender and recipient identifiers; receives communication  
data or instant synchronized communication request of a plurality of  
communication platforms such as OTT, SMS, MMS and so on; turns it into  
communication data or instant synchronized communication request of the  
suitable communication platform whereby s/he can receive his/her data or instant  
15 synchronized communication request; keeps communication data or instant  
synchronized communication request to send within a certain time limit; and  
transmits communication data or instant synchronized communication request of a  
recipient when s/he is available. However, this invention does not disclose  
transmission of sms traffic to occur while the user sends sms, to a recipient over  
20 IMS network as IP.

### **Summary of the Invention**

An objective of the present invention is to realize a system used during retrieval or  
25 transmission of short message which enables users to manage SMSs incoming to  
their mobile numbers when they have access to a mobile data network or a WIFI  
network, to send or receive SMS over a session initiation protocol in cases where  
users have no access to a mobile voice network; and to get billed according to the  
SMS pricing in the GSM operator that they are subscribers of in case where users  
30 send-receive SMS over an session initiation protocol.



## Detailed Description of the Invention

“A System Used During Retrieval or Transmission of Short Message” realized to  
5 fulfil the objective of the present invention is shown in the figure attached, in  
which:

**Figure 1** is a schematic view of the inventive system used during retrieval  
or transmission of short message.

10

The components illustrated in the figure are individually numbered, where the  
numbers refer to the following:

1. System
- 15 2. Primary electronic device
3. Secondary electronic device
4. Application
5. Register server
6. Signalling server
- 20 N. Mobile IMS network
- U. User

The inventive system (1) used during retrieval or transmission of short message  
which enables to manage short message traffic between a user (U) and another  
25 user (U) over mobile data or WIFI comprises:

- at least one primary electronic device (2) which is in communication with  
a mobile IMS (IP Multimedia Subsystem) network (N), and is configured  
to transmit, receive SMS over a mobile IMS network (N);
- at least one secondary electronic device (3) which is configured to realize  
30 data exchange with at least one communication network;

- at least one secondary application (4) which runs on the secondary electronic device (3), and is configured to enable the secondary electronic device (3) to transmit SMS to the primary electronic device (2) over a mobile IMS network (N);
- 5 - at least one register server (5) which is in communication with the application (4), and is configured to ensure that the user (U) is registered to the application (4); and
- at least one signalling server (6) which is in communication with the application (4), and is configured to manage messages created by means of  
10 the application (4).

The primary electronic device (2) included in the inventive system (1) is a smart device such as mobile phone, tablet or computer that is used by another user (U), and is configured to realize data exchange with a mobile IMS (N) network.

15

The secondary electronic device (3) included in the inventive system (1) is a device such as mobile phone, tablet, computer or smart watch that is used by a user (U). A SIM card is included on the secondary electronic device (3). The secondary electronic device (3) is configured to enable a user (U) to communicate  
20 with other persons via a pre-determined international mobile subscriber identity (IMSI) and a mobile number (MSISDN) by means of a SIM card included on it. The secondary electronic device (3) is configured to transmit and/or to receive voice and message data transmitted over IP.

25 The application (4) included in the inventive system (1) runs on the primary electronic device (2) that can convey voice and data over IP, and is configured to realize instant message transmission over a session initiation protocol (SIP). At least one session initiation protocol client is included on the application (4). The application (4) is configured to ensure that the user (U) is registered on the SIM  
30 card on his/her secondary electronic device (3). The application (4) is configured

to carry out authentication and registration transaction of the user (U) by using the digest authentication method in the session initiation protocol of the mobile number of the user (U) every time it is opened on the secondary electronic device (3). The application (4) transmits mobile number information of a user to the register server (5) by means of representational state transfer interfaces (REST) over a hyper text transfer protocol secure (HTTPS) after the user (U) is registered by his/her mobile number for the first time. The application (4) is configured to transmit instant message to the signalling management unit in the signalling server (6) by using standard methods in session initiation protocol by means of IP by using the mobile number of the user (U) after providing the user's (U) register transactions, while the streaming transaction of the SMS outgoing to the primary electronic device (2) is being carried out on the mobile IMS network (N).

The register server (5) included in the inventive system (1) is configured to enable the application (4) to run on the secondary electronic device (3). The register server (5) is configured to control whether the mobile number of the user (U) is included in the GSM operator that the user (U) is a subscriber of. The register server (5) is configured to save the SMS management capability of the mobile number to a database on it. The register server (5) is configured to transmit the SMS management capability of the mobile number to the application (4) by means of a push notification (PN) whereon the user's international subscriber identity data is included. In addition, the register server (5) is configured to transmit the SMS management capability of the mobile number to the application (4) by means of a web push notification whereon the user's international subscriber identity data is included when it runs on a web service. The register server (5) is configured to ensure that the user is get billed according to the SMS pricing in his/her tariff, by communicating with the GSM operator that s/he is subscriber of in the event that the user (U) sends-receives SMS by means of the application (4) over a session initiation protocol.

30

The signalling server (6) included in the inventive system (1) is configured to ensure that the application (4) is registered to the mobile IMS network (N) by using international mobile subscription identity and the application (4) remains registered in the life cycle. The signalling server (6) is configured to ensure that  
5 the mobile number remains registered in the mobile IMS network (N) by a register refresh transaction. The signalling server (6) is configured to ensure that the mobile number subscribes to the registry status in the mobile IMS network (N) while the register refresh transaction is initiated. The signalling server (6) is configured to notify the subscribed units in the mobile IMS network (N) when a  
10 change occurs in the register status of a number in the mobile IMS network (N), and to refresh the register transaction when this notification comprises the information that the register transactions have ended. The signalling server (6) is configured to transmit a message request to the mobile IMS network (N) while a SMS streaming transaction occurs towards the primary electronic device (2). The  
15 signalling server (6) is configured to send a request of sending message transmitted from the primary electronic device (2) to interfaces provided by the operating software manufacturer of the primary electronic device (2) whereby the application (4) saved by it previously runs, in the form of a push notification when a SMS streaming transaction is initiated from the primary electronic device (2) to  
20 the secondary electronic device (3). In one embodiment of the invention, the signalling server (6) is configured to send a request of sending message to the related application (4) in the form of a web push notification, when the user (U) uses the application (4) on the web service. The signalling server (6) is configured to cut off the signalling stream initiated between the mobile IMS network (N) and  
25 it, after the user (U) reads the message notification incoming to his/her mobile number over the application (4), when SMS stream is initiated from the primary electronic device (2) to the secondary electronic device (3).

In the inventive system (1), when SMS stream is initiated from the secondary  
30 electronic device (3) towards the primary electronic device (2) in the mobile IMS



network (N), the user (U) demands use of the application (4) and necessary register transactions are carried out in the register server (5). Then, the user (U) sends instant message by using his/her mobile number over the application (4). The application (4) transmits the message request to the signalling server (6) by means of standard methods in session initiation protocol over IP. When SMS stream is initiated from the primary electronic device (2) towards the secondary electronic device (3) in the mobile IMS network (N), lastly, the mobile IMS network (N) transmits the message as an SMS towards the number called in the system (1). Besides, in the inventive system (1), when SMS stream is initiated from the primary electronic device (2) towards the secondary electronic device (3) in the mobile IMS network (N), the user (U) demands use of the application (4) and necessary register transactions are carried out in the register server (5). Then, the number sending the SMS sends a message towards the other number. The related SMS is transmitted to the mobile IMS network (N). The mobile IMS network (N) transmits the request of sending message to the signalling server (6) in order to forward the SMS to the client registered to itself. Thereafter, the signalling server (6) sends the incoming request of sending message to interfaces provided by the manufacturer of the operating program of the mobile device whereon the application (4) runs, as a push notification in order to transmit it to the application (4) that has a mobile register on itself. If the user (U) uses the application (4) on web service, this information is transmitted as a web push notification. Afterwards, the request of sending message is transmitted to the application (4) wherein the mobile number is registered by means of services that are provided by the manufacturer of the operating program included in the device wherein the application (4) runs. Lastly, the user (U) reads the message notification incoming to his/her mobile number over the application (4) and signalling stream is completed between the signalling server (6) and the mobile IMS network (N).

With the inventive system (1), users (U) are enabled to manage SMSs incoming to their mobile numbers when they have access to a mobile data network or a WIFI network, to send or receive SMS over a session initiation protocol in cases where users (U) have no access to a mobile voice network; and to get billed according to  
5 the SMS pricing in the GSM operator that they are subscribers of in case where users (U) send-receive SMS over an session initiation protocol.

It is possible to develop various embodiments of the inventive system (1) used during retrieval or transmission of short message; the invention cannot be limited  
10 to examples disclosed herein and it is essentially according to claims.

## CLAIMS

1. A system (1) used during retrieval or transmission of short message which enables to manage short message traffic between a user (U) and another user (U)  
5 over mobile data or WIFI; **comprising**
- at least one primary electronic device (2) which is in communication with a mobile IMS network (N), and is configured to transmit, receive SMS over a mobile IMS network (N);
  - at least one secondary electronic device (3) which is configured to realize  
10 data exchange with at least one communication network;
- and **characterized by**
- at least one secondary application (4) which runs on the secondary electronic device (3), and is configured to enable the secondary electronic device (3) to transmit SMS to the primary electronic device (2) over a  
15 mobile IMS network (N);
  - at least one register server (5) which is in communication with the application (4), and is configured to ensure that the user (U) is registered to the application (4); and
  - at least one signalling server (6) which is in communication with the  
20 application (4), and is configured to manage messages created by means of the application (4).
2. A system (1) used during retrieval or transmission of short message according to Claim 1; **characterized by** the primary electronic device (2) which is a smart  
25 device such as mobile phone, tablet or computer that is used by another user (U), and is configured to realize data exchange with a mobile IMS (N) network.
3. A system (1) used during retrieval or transmission of short message according to Claim 1 or 2; **characterized by** the secondary electronic device (3) which is a

device such as mobile phone, tablet, computer or smart watch that is used by a user (U).

4. A system (1) used during retrieval or transmission of short message according  
5 to any of the preceding claims; **characterized by** the secondary electronic device (3) which includes a SIM card on it.

5. A system (1) used during retrieval or transmission of short message according  
10 to any of the preceding claims; **characterized by** the secondary electronic device (3) which is configured to enable a user (U) to communicate with other persons via a pre-determined international mobile subscriber identity and a mobile number by means of a SIM card included on it.

6. A system (1) used during retrieval or transmission of short message according  
15 to any of the preceding claims; **characterized by** the secondary electronic device (3) which is configured to transmit and/or to receive voice and message data transmitted over IP.

7. A system (1) used during retrieval or transmission of short message according  
20 to any of the preceding claims; **characterized by** the application (4) which runs on the primary electronic device (2) that can convey voice and data over IP, and is configured to realize instant message transmission over a session initiation protocol.

25 **8.** A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the application (4) whereon at least one session initiation protocol client is included.

9. A system (1) used during retrieval or transmission of short message according  
30 to any of the preceding claims; **characterized by** the application (4) which is



configured to ensure that the user (U) is registered on the SIM card on his/her secondary electronic device (3).

5 **10.** A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the application (4) which is configured to carry out authentication and registration transaction of the user (U) by using the digest authentication method in the session initiation protocol of the mobile number of the user (U) every time it is opened on the secondary electronic device (3).

10

**11.** A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the application (4) which transmits mobile number information of a user to the register server (5) by means of representational state transfer interfaces over a hyper text transfer protocol secure after the user (U) is registered by his/her mobile number for the first time.

15

**12.** A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the application (4) which is configured to transmit instant message to the signalling management unit in the signalling server (6) by using standard methods in session initiation protocol by means of IP by using the mobile number of the user (U) after providing the user's (U) register transactions, while the streaming transaction of the SMS outgoing to the primary electronic device (2) is being carried out on the mobile IMS network (N).

20

**13.** A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the register server (5) which is configured to enable the application (4) to run on the secondary electronic device (3).

25

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14. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the register server (5) which is configured to control whether the mobile number of the user (U) is included in the GSM operator that the user (U) is a subscriber of.

5

15. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the register server (5) which is configured to save the SMS management capability of the mobile number to a database on it.

10

16. A system (1) used during retrieval or transmission of short message according to Claim 15; **characterized by** the register server (5) which is configured to transmit the SMS management capability of the mobile number to the application (4) by means of a push notification (PN) whereon the user's international subscriber identity data is included.

15

17. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the register server (5) which is configured to transmit the SMS management capability of the mobile number to the application (4) by means of a web push notification whereon the user's international subscriber identity data is included when it runs on a web service.

20

18. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the register server (5) which is configured to ensure that the user is get billed according to the SMS pricing in his/her tariff, by communicating with the GSM operator that s/he is subscriber of in the event that the user (U) sends-receives SMS by means of the application (4) over a session initiation protocol.

25

19. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which is configured to ensure that the application (4) is registered to the mobile IMS network (N) by using international mobile subscription identity and the  
5 application (4) remains registered in the life cycle.

20. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which is configured to ensure that the mobile number remains registered in the mobile  
10 IMS network (N) by a register refresh transaction.

21. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which is configured to ensure that the mobile number subscribes to the registry status in  
15 the mobile IMS network (N) while the register refresh transaction is initiated.

22. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which is configured to notify the subscribed units in the mobile IMS network (N) when a  
20 change occurs in the register status of a number in the mobile IMS network (N), and to refresh the register transaction when this notification comprises the information that the register transactions have ended.

23. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which is configured to transmit a message request to the mobile IMS network (N) while  
25 a SMS streaming transaction occurs towards the primary electronic device (2).

24. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which  
30

is configured to send a request of sending message transmitted from the primary electronic device (2) to interfaces provided by the operating software manufacturer of the primary electronic device (2) whereby the application (4) saved by it previously runs, in the form of a push notification when a SMS  
5 streaming transaction is initiated from the primary electronic device (2) to the secondary electronic device (3).

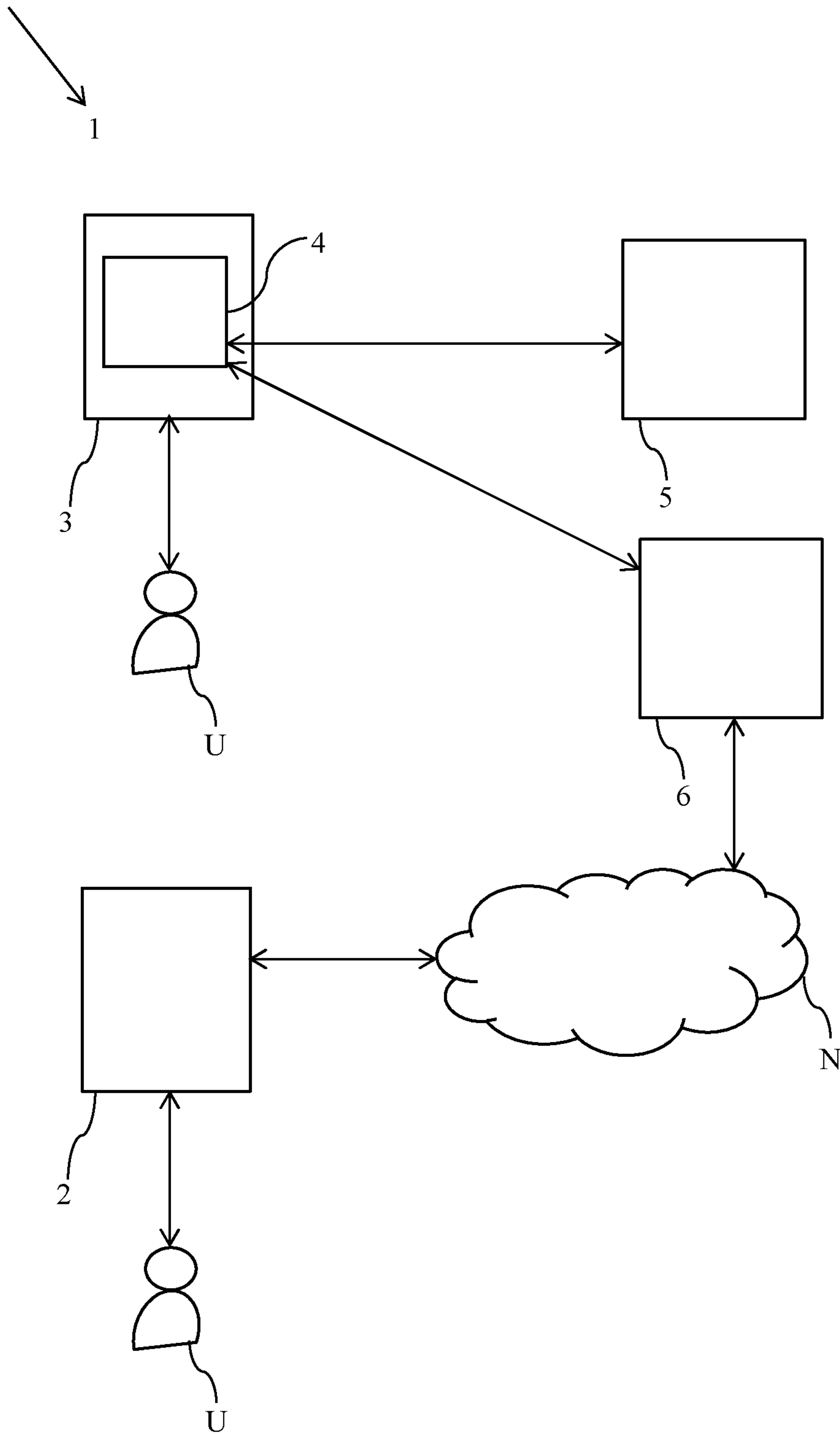
25. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which  
10 is configured to send a request of sending message to the related application (4) in the form of a web push notification, when the user (U) uses the application (4) on the web service.

26. A system (1) used during retrieval or transmission of short message according to any of the preceding claims; **characterized by** the signalling server (6) which  
15 is configured to cut off the signalling stream initiated between the mobile IMS network (N) and it, after the user (U) reads the message notification incoming to his/her mobile number over the application (4), when SMS stream is initiated from the primary electronic device (2) to the secondary electronic device (3).

20



Figure 1



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2020/051388

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> H04W 4/14 (2009.01)i; H04L 29/06 (2006.01)i  According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) H04W; H04L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Published patent and utility model applications of Turkey, 2005-2021		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO Abstract & Fulltext Databases, WPI Data, 3GPP, GSMA & Keywords: SMS, short, text, multimedia message, short message service, wi-fi, 3g, 4g, 5g, LTE, long-term evolution, mobile data network, SMS over Wi-Fi, wi-fi SMS, GSM, Internet Protocol, IP Multimedia Sub-system, IMS, IP Multimedia Core Network Subsystem, billing, invoice, pricing, mobile-data, mobile, wireless, cell, smart, telephone, phone, cellphone, smartphone, mobile terminal, user equipment, PDA, not available, unavailable, network, multi-mode, mobile operator, telco, telecommunication company, service provider, session initiation protocol, SIP, mobil cihaz, kısa mesaj, şebeke, uygulama		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009129372 A1 (A1)AT & T MOBILITY II LLC [US] (B2)PANDEY VINOD KUMAR [US]; SCHLIEBER KARL J [US]; STAFFORD MATTHEW WAYNE [US]; WANG JIANRONG [US]; AT & T MOBILITY II LLC [US]21 May 2009 (2009-05-21) abstract; description column 7, lines 19-40; column 8, line 49 – column 9, line 12; fig.3	1-26
X	3GPP TS 23.204 V11.5.0 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Support of Short Message Service (SMS) over generic 3GPP Internet Protocol (IP) access; Stage 2 (Release 11) September 2013 (2013-09-30) the whole document	1-26
X	US 8543107 B1 (BERTZ LYLE T [US]; ROUTH WILLIAM J [US]; GUIRGUIS IHAB A [US]; LEWIS RONALD E [US]; MELUS CHRISTOPHER R [US]; SPRINT SPECTRUM LP [US]) 24 September 2013 (2013-09-24) the whole document	1-26
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed “T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family		
Date of the actual completion of the international search <b>05 May 2021</b>		Date of mailing of the international search report <b>05 May 2021</b>
Name and mailing address of the ISA/TR <b>Turkish Patent and Trademark Office (Turkpatent) Hipodrom Caddesi No. 13 06560 Yenimahalle Ankara Turkey</b> Telephone No. (90-312) 303 11 82 Facsimile No. +903123031220		Authorized officer  <b>Mustafa Güney ÇALIŞKAN</b>  Telephone No. +903123031219

## INTERNATIONAL SEARCH REPORT

International application No.

**PCT/TR2020/051388**

<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

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				EP	2663054	B1	09 December 2015
				ES	2597178T	T3	01 December 2016
CN	106612531	A	03 May 2017	CN	106612531	A	05 December 2016